

### REMARKS/ARGUMENTS

The Examiner is thanked for the final Office Action mailed October 16, 2008. The status of the application is as follows:

- Claims 1-3 and 5-21 are pending;
- Claims 1-3, 5, 6, 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elbakri et al. (US 6,507,633) in view of Liew et al. (Noise propagation in SPECT images reconstructed using iterative maximum-likelihood algorithm);
- Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elbakri et al. in view of Liew et al. and in further view of Lange et al. (Globally Convergent Algorithms for Maximum a Posteriori Transmission Tomography);
- Claims 9-13 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elbakri et al. in view of August (US 2003/0219152) and in further view of Liew et al.;
- Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elbakri et al. in view of August and Liew et al. and in further view of Van Stevendall et al. (US 2007/0019782);
- Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elbakri et al. in view of August and Liew et al. and in further view of Simon et al. (US 2002/0154735);
- Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Elbakri et al. in view of August and Liew et al. and in further view of Eisenberg et al. (US 2003/0128801); and
- Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elbakri et al. in view of August and Liew et al. and in further view of Fessler (US 2003/0156684).

The rejections are discussed below.

#### **The Rejection of Claims 1-3, 5, 6, 8 and 13 under 35 U.S.C. 103(a)**

Claims 1-3, 5, 6, 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elbakri et al. in view of Liew et al. This rejection should be withdrawn because the combination of Elbakri et al. and Liew et al. does not establish a *prima facie* case of obvious with respect to the subject claims.

The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the

elements as claimed. KSR International Co. v. Teleflex Inc., 550  
U.S. \_\_\_\_ (2007) MPEP §2143.

**Claim 1** recites a method of artifact correction in a data set of an object of interest, the method comprising, *inter alia*: the reconstruction of the image being performed on the basis of an iterative algorithm comprising a plurality of update steps until an end criterion has been fulfilled, **where each update step comprises subtractions weighted with an intrinsic statistical error  $\sigma_{Y_i}$  based on measured photon counts  $Y_i$ , wherein  $\sigma_{Y_i}$  is equal to the square root of  $Y_i$ .** The combination of Elbakri et al. and Liew et al. fails to teach or suggest each and every element of claim 1.

In particular, the Examiner asserts that column 9, lines 1-10, of Elbakri et al. discloses an iterative algorithm comprising a plurality of update steps until an end criterion is fulfilled, with each update step comprising weighted subtractions. Applicant respectfully traverses this assertion. Elbakri et al. discloses pre- or post-filtering data by applying “regularization penalties” (column 8, lines 36-38) that include a first weight ( $w_{jk}=1$ ) for orthogonal pixels and a second weight ( $w_{jk}=1/\sqrt{2}$ ) for diagonal pixels (see Equation 12; column 9, lines 1-10). The penalties and thus the weights  $w_{jk}$  are not included in each step of the iterative algorithm. Rather, they are applied before or after the iterative algorithm. Therefore, Elbakri et al. fails to teach or suggest each update step of an iterative algorithm comprising weighted subtractions.

Furthermore, the Examiner concedes that Elbakri et al. fails to teach subtractions weighted with an intrinsic statistical error  $\sigma_{Y_j}$  based on measured photon counts  $Y_j$ , where  $\sigma_{Y_j}$  equals the square root of  $Y_j$ , but asserts that Liew et al., in the Abstract and on page 1717, makes up for this conceded deficiency. Applicant respectfully traverses this assertion. Liew et al. discloses a ratio  $\sigma/m$ , where  $\sigma$  is the standard deviation and  $m$  is the mean value of photon counts per pixel (i.e., an average value of counts). This ratio is inversely proportional to the square root of the total detected counts  $N$ . Therefore, Liew et al. teaches a standard deviation that equates to the average photon count per pixel ( $m$ ) over the square root of the total detected counts ( $\sqrt{N}$ ). Since the mean value  $m$  cannot be factored out, the standard deviation of Liew et al. ( $m/\sqrt{N}$ ) is not the same quantity as the intrinsic statistical error ( $\sqrt{Y_j}$ ) recited in claim 1. Accordingly, the combination of Elbakri et al. and Liew et al. does not disclose all the elements of claim 1 and rejection should be withdrawn.

**Claims 2-3, 5-6, 8 and 13** depend from claim 1 and are allowable at least by virtue of their dependencies. As such, the rejection of claims 2-3, 5-6, 8 and 13 should be withdrawn

**The Rejection of Claims 9-13 and 18-20 under 35 U.S.C. 103(a)**

Claims 9-13 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elbakri et al in view of August and Liew et al. This rejection should be withdrawn because the independent **claims 9, 11 and 12** recite aspects similar to claim 1. The discussion with regards to claim 1 applies *mutatis mutandis* to claims 9, 11 and 12. Also, **Claims 10, 13 and 18-20** depend from claims 1, 9 and 12, respectively, and are allowable at least by virtue of their dependencies. Hence, the rejection of claims 9-13 and 18-20 should be withdrawn.

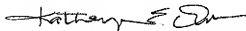
**Other Dependent Claims**

All other claims depend from claims 1, 9, 11 and 12. As such, all these claims are allowable at least by virtue of their dependencies on their respective base claims. Therefore, the rejection of the remaining dependent claims should be withdrawn

**Conclusion**

In view of the foregoing, it is submitted that the claims distinguish patentably and non-obviously over the prior art of record. An early indication of allowability is earnestly solicited.

Respectfully submitted,



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